

1. A system for automatically controlling the build-up of material on a  
2 substrate, comprising:
  - 3 a controllable semiconductor diode laser having a beam directed to a localized  
4 region of the substrate so as to form a melt pool thereon;
  - 5 a material feeder for feeding material into the melt pool to be melted by the beam  
6 to create a deposit having a physical attribute;
  - 7 an optoelectric sensor operative to output an electrical signal as a function of the  
8 physical attribute; and
  - 9 a feedback controller operative to automatically adjust the rate of material  
10 deposition as a function of the electric signal.